

0968923

SAF-RC-030
Remaining Sites Confirmation Sampling -
Other Solid
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2)

H9-02

mjd 02/23/06
INITIAL/DATE

COMMENTS:

SDG

J00038

SAF-RC-030

Waste Site: 100-D-50:5

RECEIVED
MAR 09 2006
EDMC

Date: 14 February 2006
To: Washington Closure Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: Remaining Sites Confirmation Sampling – Other Solid – Waste Site
100-D-50:5
Subject: Wet Chemistry - Data Package No. J00038-ST

INTRODUCTION

This memo presents the results of data validation on Data Package No. J00038 prepared by Severn Trent (ST). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Date
J10L57	12/28/05	Solid	C	See note 1

1 – Chromium VI by 7196A.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, Rev. 4, February 2005). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

• Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 30 days for chromium VI.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

000001

- **Method Blanks**

Method Blanks

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. All blank results must fall below the contract required detection limit (CRQL) to be acceptable.

All method blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR".

Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J".

Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to a matrix spike recovery outside QC limits (1%), all chromium VI results were rejected and flagged "R".

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and

000002

the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

Due to an RPD outside QC limits (120%), all chromium VI results were qualified as estimates and flagged "J".

Field Duplicate

No field duplicates were submitted for analysis.

Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQLs) to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

Completeness

Data package J00038 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 0%.

MAJOR DEFICIENCIES

Due to a matrix spike recovery outside QC limits (1%), all chromium VI results were rejected and flagged "R". Rejected data is not usable and should not be reported.

MINOR DEFICIENCIES

Due to an RPD outside QC limits (120%), all chromium VI results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes.

000003

REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1
Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

000006

Appendix 2
Summary of Data Qualification

000007

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: J00038	REVIEWER: TLI	Project: 100 D-50-5	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Chromium VI	R	All	MS recovery
Chromium VI	J	All	RPD

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: WASHINGTON CLOSURE HANFORD			
Lab: ST	SDG: J00038		
Sample Number	J10L57		
Remarks			
Sample Date	11/7/05		
Wet Chemistry	RQL	Result	Q
Chromium VI	0.5	0.350	UR

000010

FORM I SAMPLE RESULTS

Date: 11-Jan-06

Lab Name: STL Richland

SDG: J00038

Collection Date: 12/28/2005 1:00:00 PM

Lot-Sample No.: J5L280334-1

Report No.: 31019

Received Date: 12/28/2005 3:30:00 PM

Client Sample ID: J10L57

COC No.: RC-030-030

Matrix: SOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Count Qual Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6010341	7196_CR6			Work Order: HTWTA1AA		Report DB ID: 9HTWTA10					
HEXCHROME	3.50E-01 U <i>R</i>		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	12/29/05		2.5	
						3.50E-01	N/A			G	

No. of Results: 1

Comments:

R
2/14/06

0000011

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012

Certificate of Analysis

Washington Closure Hanford
3190 George Washington Way
Richland, WA 99354

January 12, 2005

Attention: Joan Kessner

SAF Number	:	RC-030
Date SDG Closed	:	December 28, 2005
Number of Samples	:	One (1)
Sample Type	:	Other Solids
SDG Number	:	J00038
Data Deliverable	:	15-Day / Summary

CASE NARRATIVE

I. Introduction

On December 28, 2005, one water sample was received at STL Richland (STLR) for chemistry analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

<u>WCH ID#</u>	<u>STLR ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
J10L57	HTWTA	OTHER SOLID	12/28/05

II. Sample Receipt

The sample was received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors. The requested analyses were:

Chemical Analysis
Hexavalent Chromium by EPA method 7196A

000013

Washington Closure Hanford
January 12, 2006

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments


Chemical Analysis

Hexavalent Chromium by EPA method 7196A:

The samples from two different SDG, J00037 and J00038, were inadvertently run in one batch. The matrix spike (J10L57) in this batch was not recovered from the sample. The post digestion spike (J10L57) however was within acceptance limits. Other than as noted, the LCS, batch blank, sample, post digestion matrix spike (J10L57) and sample duplicate (J10L57) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Hans Carman
Project Manager

000014

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-030-030		Page 1 of 1	
Collector STANKOVICH/HUDSON		Company Contact Mike Stankovich		Telephone No. 531-7620		Project Coordinator KESSNER, JH		Price Code 9C Data Turnaround 15 Days	
Project Designation Remaining Sites Confirmation Sampling - Other Solid		Sampling Location 100-D-50.5		SAF No. RC-030		Air Quality []			
Ice Chest No.		Field Logbook No. EL-1578		COA C10DR16700		Method of Shipment FedEx			
Shipped To Severn Trent Incorporated, Richland		Offsite Property No.		Bill of Lading/Air Bill No.					
POSSIBLE SAMPLE HAZARDS/REMARKS J00038		Preservation		Cool 4C					
Special Handling and/or Storage JSL 280 334		Type of Container		G/P					
Due 01 12 06		No. of Container(s)		1					
		Volume		120mL					
SAMPLE ANALYSIS		Chromium Hex - 7196							
Sample No.	Matrix *	Sample Date	Sample Time						
J10L55	OTHER SOLID	12-28-05							
J10L56	OTHER SOLID								
J10L57 HTWTA	OTHER SOLID	12-28-05	1300	X					
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
[Signature] MTS Stankovich		12/28/05		Jeff Jensen		12/28/05			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

BHI-EE-011 (08/29/2005)

000015

**SEVERN
TRENT**

STL

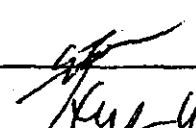
**Richland Laboratory
Data Review Check List
Hexavalent Chromium**

Work Order Number(s): HTWR8, HTWTA				
Lab Sample Numbers or SDG: J00035 7 & 4 45 11/10/02				
Method/Test/Parameter: Cr+6 in Solid / RICH-WC-5005, Rev 7				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Initial Calibration	✓			✓
1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient within QC limits?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration	✓			✓
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis	✓			✓
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?	✓			✓
2. Were all sample holding times met?	✓			✓
D. QC Samples	✓			✓
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?		✓		✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?			✓	✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓

000016

Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
E. Other			✓	
1. Are all nonconformances included and noted?				✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response MS and MSD very low yields, PDMS at 86% _____

Analyst: S. Wheland 

Date: 1/10/06

Second-Level Review: 

Date: 1-10-06

000017

Clouseau Nonconformance Memo

SEVERN
TRENT
SERVICES

NCM #: 10-07305	Classification: Anomaly
NCM Initiated By: Steven Wheland	Status: GLREVIEW
Date Opened: 01/10/2006	Production Area: Classical Chemistry
Date Closed:	Tests: 7196A
	Lot #'s (Sample #'s): J5L280333 (1), J5L280334 (1), J6A100000 (341),
	QC Batches: 6010341
Nonconformance: Other (describe in detail)	
Subcategory: Other (explanation required)	

Problem Description / Root Cause

Name	Date	Description
Steven Wheland	01/10/2006	MS and MSD yield very low yields, while the PDMS produced a 86% yield.

Corrective Action

Name	Date	Corrective Action
Steven Wheland	01/10/2006	

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
			<u>Response</u>		<u>Response Note</u>

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	<u>C</u>	D	E
PROJECT:	100-D-50:5		DATA PACKAGE: J00038		
VALIDATOR:	TLI	LAB:	ST	DATE: 2/14/06	
			SDG: J00038		
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	<u>Chromium-VI</u>	pH	NO ₃ /NO ₂
Sulfate	TDS	TKN	Phosphate		
SAMPLES/MATRIX					
J10L57					
solid					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A

Comments: _____

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? Yes No N/A

Initial calibrations acceptable? Yes No N/A

ICV and CCV checks performed on all instruments? Yes No N/A

ICV and CCV checks acceptable? Yes No N/A

Standards traceable? Yes No N/A

Standards expired? Yes No N/A

Calculation check acceptable? Yes No N/A

Comments: _____

000020

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) Yes No N/A
 ICB and CCB results acceptable? (Levels D, E) Yes No N/A
 Laboratory blanks analyzed? Yes No N/A
 Laboratory blank results acceptable? Yes No N/A
 Field blanks analyzed? (Levels C, D, E) Yes No N/A
 Field blank results acceptable? (Levels C, D, E) Yes No N/A
 Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: no FB

4. ACCURACY (Levels C, D, and E)

Spike samples analyzed? Yes No N/A
 Spike recoveries acceptable? Yes No N/A
 Spike standards NIST traceable? (Levels D, E) Yes No N/A
 Spike standards expired? (Levels D, E) Yes No N/A
 LCS/BSS samples analyzed? Yes No N/A
 LCS/BSS results acceptable? Yes No N/A
 Standards traceable? (Levels D, E) Yes No N/A
 Standards expired? (Levels D, E) Yes No N/A
 Transcription/calculation errors? (Levels D, E) Yes No N/A
 Performance audit sample(s) analyzed? Yes No N/A
 Performance audit sample results acceptable? Yes No N/A

Comments: NO PAH

per the case narrative, no matrix spike was run
w/this system in this sample 2/15/01

MS recovery 190 - R all

000021

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? Yes ☒ No ☐ N/A ☐
Duplicate results acceptable? Yes ☒ No ☐ N/A ☐
MS/MSD standards NIST traceable? (Levels D, E) Yes ☐ No ☒ N/A ☐
MS/MSD standards expired? (Levels D, E) Yes ☐ No ☒ N/A ☐
Field duplicate RPD values acceptable? Yes ☐ No ☒ N/A ☐
Field split RPD values acceptable? Yes ☐ No ☒ N/A ☐
Transcription/calculation errors? (Levels D, E) Yes ☐ No ☒ N/A ☐

Comments: MS not run - see all 2/16

RPD 120% Jal

6. HOLDING TIMES (all levels)

Samples properly preserved? ☒ Yes ☐ No ☐ N/A ☐
Sample holding times acceptable? ☒ Yes ☐ No ☐ N/A ☐

Comments: _____

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses?.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Results supported in the raw data? (Levels D, E).....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Samples properly prepared? (Levels D, E).....	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Detection limits meet RDL?.....	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Transcription/calculation errors? (Levels D, E)	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

000024

QC Results Summary
STL Richland STLRL
 Ordered by Method, Batch No, QC Type,.

Date: 11-Jan-06

Report No. : 31019

SDG No.: J00038

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
7196_CR6									
6010341 MATRIX SPIKE									
	HTWTA1AC	HEXCHROME	3.50E-01 +/- 0.0E+00	U	mg/kg	N/A	1%	-1.0	3.50E-01
	HTWTA1AE	HEXCHROME	2.06E+00 +/- 0.0E+00		mg/kg	N/A	4%	-1.0	3.50E-01
6010341 LCS									
	HVDWV1AC	HEXCHROME	4.13E+01 +/- 0.0E+00		mg/kg	N/A	103%	0.0	3.50E-01
6010341 BLANK QC									
	HVDWV1AA	HEXCHROME	3.50E-01 +/- 0.0E+00	U	mg/kg	N/A			3.50E-01
No. of Results: 4									

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSummary V4.14.4 A97 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

000025

STL RICHLAND